

## WEEK ENDING DECEMBER 11

This week was dominated by the most severe cold waves of the month. Blocking decreased in the Icelandic area (figs. 10A and 10B) and apparently reappeared over the Beaufort Sea. Here the height anomaly associated with the High at 700 mb. was 920 ft. greater than normal. Deepening of the trough in eastern North America reinforced the northwesterly flow that transported three Arctic air masses into the country east of the Divide.

Temperatures for the week were lower than normal (fig. 10C) except in portions of the Great Basin and Pacific Northwest. It was unusually cold east of the Continental Divide with the freezing line reaching to the Gulf of Mexico and well into central Florida. Temperatures of 0° F. or lower were noted as far south as northern Tennessee, southern Missouri, and northern Oklahoma. Temperatures averaged 20°–30° F. below normal from the northern Plains to the Ohio Valley. Average temperatures for the week at Moline, Ill., and Omaha, Nebr., were –4° F., or 31° F. below normal. International Falls, Minn., coldest in the Nation, averaged –15° F. while Fargo, N. Dak., had the largest temperature anomaly (–32° F.).

Rather heavy snow fell the first three-days of the week from the northern Rockies to the east coast, associated with a perturbation on the Arctic front. This storm preceded the second Arctic High of the week and deepened remarkably in the vicinity of Nova Scotia as it moved into the mean trough. Sea level pressure in the Low decreased from 1005 mb. off New Jersey to 952 mb. over the Gulf of St. Lawrence in a 24-hr. period.

Precipitation in the last three days consisted of heavy rains in the Pacific Northwest, snow along the eastern slopes of the Rockies and into the Plains, and an inch of rain along the central Gulf Coast and in southern Florida.

## WEEK ENDING DECEMBER 29

Deepening of the Pacific trough continued for the fourth week this month (figs. 11A and 11B), and blocking in high latitudes weakened considerably. The ridge over western United States was dominant, with heights some

300 ft. higher than normal in the Great Basin. The Low formerly over Labrador migrated northward and split into two cells.

Appreciable warming occurred this week in most areas (fig. 11C). However, the eastern half of the Nation remained cold with temperatures 6°–9° F. below normal in the Gulf States. The lowest temperature was –17° F. at Memphis, Tenn. Temperatures in the West increased, excluding the San Joaquin Valley and portions of Utah and Idaho. Largest positive temperature anomaly, +12° F., was reported at Great Falls, Mont.

Storminess diminished this week. Consequently, there was little precipitation over most of the United States but there were heavy rains along the northern Pacific Coast and in portions of the East Coast States. Two waves from the Gulf of Mexico, one early in the week, produced rain in the South and spread snow to the Lakes. On the last day of the month another wave deepened and deposited heavy snow in parts of the South and Southeast and a severe, damaging glaze in Georgia. Especially heavy snow was reported at Meridian, Miss. (14 in.), Huntsville, Ala. (16 in.), Birmingham, Ala. (8 in.), Augusta, Ga. (6.6 in.), and Nashville, Tenn. (5.8 in.).

## REFERENCES

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3. J. Namias, "The Index Cycle and Its Role in the General Circulation," *Journal of Meteorology*, vol. 7, No. 2, Apr. 1950, pp. 130–139.
4. J. F. O'Connor, "The Weather and Circulation of July, August, and September 1963—Dry and Cool in the East," *Monthly Weather Review*, vol. 91, Nos. 10–12, Oct.–Dec. 1963, pp. 737–748.
5. J. Namias, "Persistence of Mid-Tropospheric Circulations Between Adjacent Months and Seasons," *The Atmosphere and the Sea in Motion*, The Rossby Memorial Volume, Rockefeller Institute Press in association with Oxford University Press, New York, 1959, pp. 240–248.
6. U.S. Weather Bureau, *Weekly Weather and Crop Bulletin National Summary*, vol. L, Nos. 49–52, Dec. 9, 16, 23, 30, 1963; and vol. LI, No. 1, Jan. 6, 1964.

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